

## PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

REC'D 03 FEB 2005

WIPO PCT

Applicant's or agent's file reference F910	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP 03/09170	International filing date (day/month/year) 18.07.2003	Priority date (day/month/year) 13.11.2002
International Patent Classification (IPC) or both national classification and IPC H02K3/47		
Applicant HONDA GIKEN KOGYO KABUSHIKI KAISHA et al.		

1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I  Basis of the opinion
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 17.11.2003	Date of completion of this report 02.02.2005
Name and mailing address of the International preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  von Rauch, E Telephone No. +49 89 2399-2291



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**I. Basis of the report**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-17                          as originally filed

**Claims, Numbers**

5-9                          as originally filed  
1, 3                          received on 21.01.2004 with letter of 15.01.2004

**Drawings, Sheets**

1/17-17/17                  as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description,        pages:
- the claims,              Nos.:              2,4
- the drawings,            sheets:

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5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes:	Claims	5-9
	No:	Claims	1,3
Inventive step (IS)	Yes:	Claims	none
	No:	Claims	1,3,5-9
Industrial applicability (IA)	Yes:	Claims	1,3,5-9
	No:	Claims	none

**2. Citations and explanations**

**see separate sheet**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

- 1) Reference is made to the following documents:

D1: EP-A-1 073 179 (HONDA MOTOR CO LTD) 31 January 2001 (2001-01-31)  
D2: FR-A-2 411 788 (VIDEON SA) 13 July 1979 (1979-07-13)

2) INDEPENDENT CLAIMS

- 2.1) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document): A slotless permanent magnet electric machine, comprising a cylindrical rotor (7) having a permanent magnet (11), a stator (1) surrounding the rotor (7) wherein the stator (1) consists of a slotless winding (15) inside an iron core (17) and an air gap, the stator winding (15) comprises a winding made out of a plurality of overlapping turns of a conductor (23, 29) which are shifted in circumferential direction and the conductor (23, 29) has a rectangular cross section with rounded corners, including a long and a short side, with the long side extending in radial direction (cf. figures 5-6).

- 2.2) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 5 does not involve an inventive step in the sense of Article 33(3) PCT.

Document D2 is regarded as being the closest prior art to the subject-matter of claim 5, and discloses (the references in parentheses applying to this document):

A method of making a winding including steps of:

- wrapping a first round wire (3) having a diameter of the short side of the conductor and a second round wire in a spiral around a tool, whereby alternating the first and the second wire and having a contact between the two wires (cf. figure 1),
- removing the first wire from the tool,

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- wrapping the conductor around the bar inside the space created by removing the first wire,
- removing the second wire from the tool.

The subject-matter of claim 5 therefore differs from this known document D2 in the assembly of a winding for a slotless permanent magnet electric machine, whereby the winding conductors have a rectangular cross-section, being wound with the conductor long side perpendicularly towards the surface of the tool, and a bar as winding tool.

The problem to be solved by the present invention may therefore be regarded as how to create a slotless winding.

The solution proposed in claim 5 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for document D1 discloses a slotless permanent magnet electric machine, comprising a rectangular conductor with the long side perpendicular to a winding tool. A skilled person would use the winding tool and method as disclosed in document D2 to produce an electric machine disclosed in document D1.

3) Dependent claims 3, 6-9 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D1 and D2 or general knowledge of a skilled person.

4) CLARITY

Some of the features in the method claims 6 and 7 relate to an apparatus rather than adding steps to the method of claim 5. The intended limitations are therefore not clear from this claim, contrary to the requirements of Article 6 PCT. A dependency of claims 6 and 7 on apparatus claim 1, would overcome this objection.

The term "elongated" used in claim 1 is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claim unclear, Article 6 PCT. The definition in

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claim 5 of a conductor to only having a rectangular cross-section including a long and a short side seems to be more appropriate.

If there are several claims, they shall be numbered consecutively (Rule 6.1 b), PCT). In case of amendments having cancelled claims, the remaining claims could be renumbered.

**5) MISCELLANEOUS**

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.

The description is not in conformity with the claims as required by Rule 5.1(a)(iii) PCT.

The technical features of claims 1-9 are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).